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Chapter 1 Overview

1.1 Introduction

The ARS-2212 is the world's first ultra-thin data mirror backup product using 2.5" SATA hard disk based storage equipment. It can be connected to a computer for use through the user-friendly USB interface without requiring rebooting of the computer. The ARS-2212 is suitable for general consumers such as individual users, students or office workers and can be used at home, at the office or on the move. These make it the perfect storage solution for notebook users. The ARS-2212 can be connected externally to store important user data and in Mirror Mode a complete backup is retained even if one of the hard disks fails. Excellent product compatibility ensures that the ARS-2212 can be used with most 2.5" SATA hard disks on the market. The ARS-2212 Mirror Smart Mini (MSM) comes with a streamlined design that suits all notebook styles currently on the market. The fashionable styling will not only make you the envy of other users but also emphasize your expertise in storage solutions.

1.2 Features

- Built-in ACARD ARC286 system engine chip
- Support for RAID 1 and Normal configuration modes
- Support for 2.5" SATA hard disks
- Supports automatic hard disk rebuilding
- Supports hot-swapping on USB enabled server systems
- Dual-color LED status display for hard disk and RAID functionality
- OTB (One Touch Backup) button design*
- Alarm sounds when system is damaged
- Built-in Flash ROM for faster firmware updates

* OTB is only available when used with eSBR software (easy storage, easy backup, easy recovery)

1.3 Specifications

- ACARD ARC286 USB to SATA control chip
- RAID Modes: RAID 1 and Normal
- Supports automatic hard disk rebuilding
- System Interface:
  - Support for USB 2.0 B-Type with data transfer rates of up to 480Mb/Sec
- Hard Disk Interface:
  - Support for two 2.5” SATA interfaces with data transfer rates of up to 1.5Gbps
- Error Notification: Built-in buzzer and LED indicator
- Built-in 64KB Flash ROM
- Supported Operating Systems: Windows ME/2000/NT/XP/Server 2003/ Vista, Linux, Mac OS etc.
- Dimensions: 163mm (W) x 16mm (H) x 163mm (D)
- Power Supply: Input: 100V~220V/2A; Output: 5V/2A
- Temperature:
  - Operating: 5°C~40°C (No condensation)
  - Non-Operating: 5°C~50°C

1.4 Packaging

- ARS-2212 x 1
- HDD Rack x 2
- Screwdriver x 1
- Packet of Screws x 1
- Support CD-ROM (eSBR, Mirror Utility, Ha! DVD) x 1
- User Manual x 1
- USB 2.0 Cable x 1
- Power Supply x 1

1.5 Quick Setup

1. Prepare two identical 2.5” SATA hard disks.
2. Fit both hard disks with the HDD Rack Handle and screw securely into place.
3. Open and remove the ARS-2212 front panel.
4. Take the hard disks by the Rack Handle and then insert them into the ARS -2212 system with the SATA interface facing inwards. Check that the SATA hard disks’ data and power connectors are securely affixed to the data and power connectors in the ARS-2212 system.
5. Replace the ARS-2212 front panel and screw securely in place.
6. Connect the power supply to the ARS-2212 and start device.
7. Connect the USB 2.0 B-type cable to the ARS-2212.
8. Connect USB 2.0 A-type connector at the other end of the cable to the computer’s USB interface.
9. Once the computer boots up the system will detect a hard disk named Mirror USB Device. Partition and format the Mirror USB device if necessary.

1.6 Hard Disk Compatibility

The ARS-2212 is designed for use with 2,5” SATA hard disk*s. The latest list of compatible hard disks is available online from: http://www.acard.com

If your hard disk is not included in the ACARD compatibility list, please contact us or your distributor.

Chapter 2 Installation

ARS-2212 Main Device

Status Panel (from left to the right):

：RAID Mode Configuration Switch (factory default is RAID 1)

：Back up Control Button (Available when online)

：Three-colored indicators showing the hard disks' power supply, failure and data rebuilding status.

：The two hard drives’ data access indicators

：RAID 1 status indicator

：Normal status indicator

2.1 ARS-2212 Hard Disk Installation

1. First secure the hard disk handles included in the packaging to the hard disks with the screws provided as shown in the picture below:

I.

II.

III.

2. Unscrew and remove the ARS-2212 front panel as shown in the picture below:

I.

II.

3. Now insert the SATA hard disks fitted with the hard disk handles into the ARS-2212 along the guide rails with the front side facing upwards. Push the hard disks until the contacts are securely attached as shown in the picture below:

I.

II.

4. After checking that the hard disks have been properly installed into the ARS-2212, replace and screw the front panel securely back into place as shown in the picture below:

I. II.

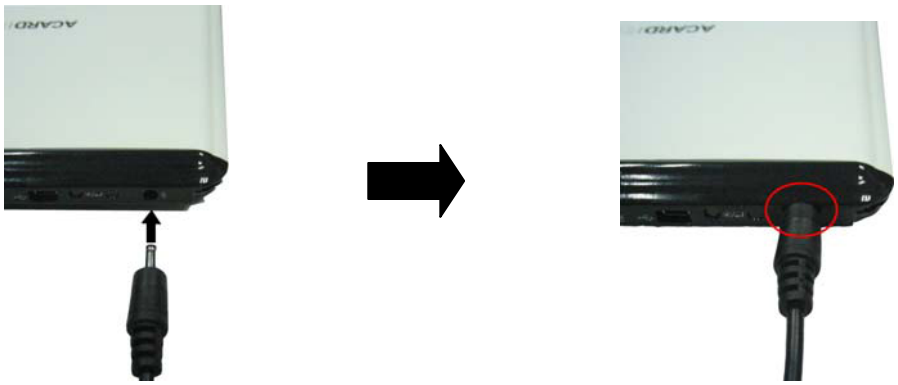
5. Finally attach the anti-skid pads included with the accessories at the indicated locations as shown in the picture below:

I. II.

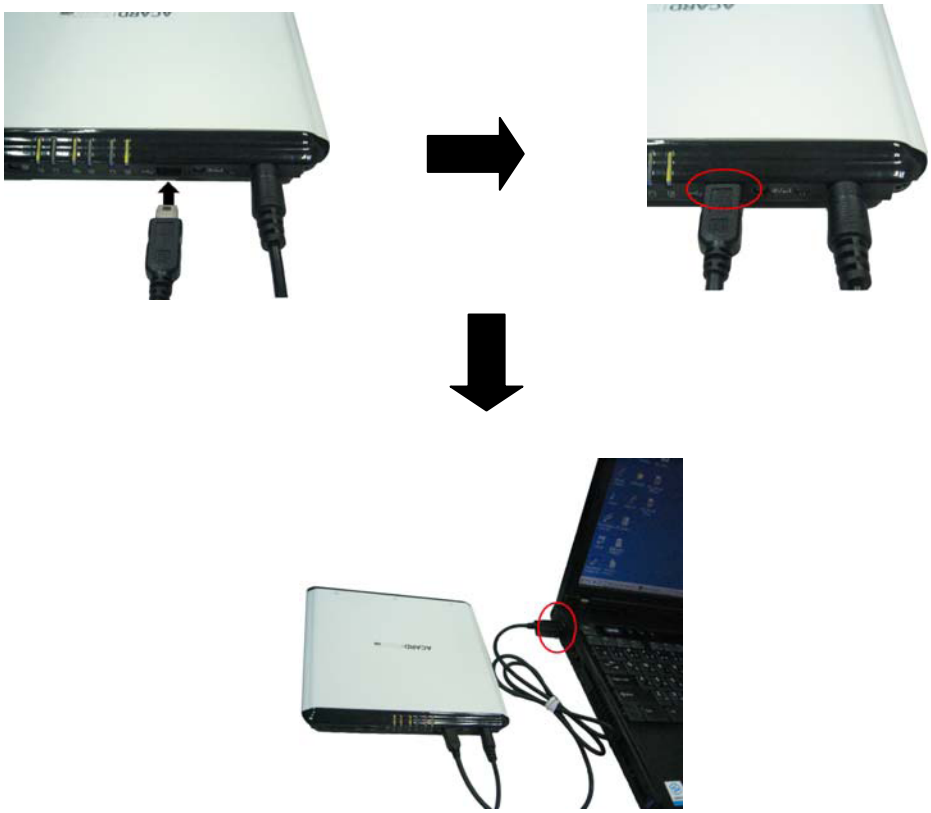
**The above steps complete the hardware installation of the ARS-2212

2.2 Connecting the ARS-2212 to the Computer

1. Connect the power cable and check that the power indicator on the front panel of the ARS-2212 lights up.



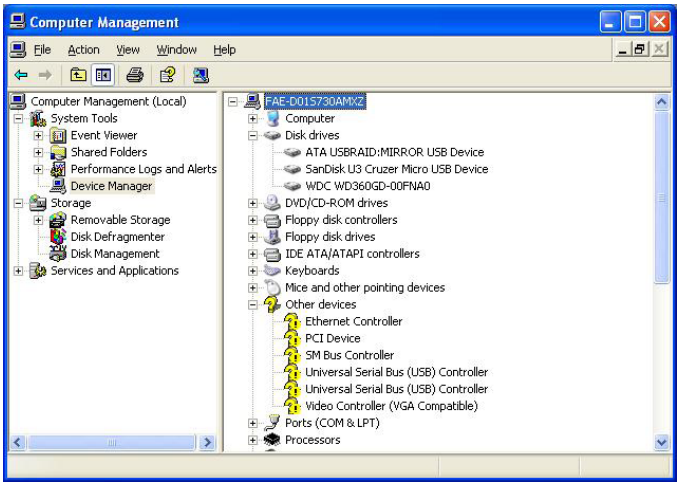
2. Connect one end of the UBS 2.0 B-type cable to the ARS-2212 and the other to the USB interface of the computer system.



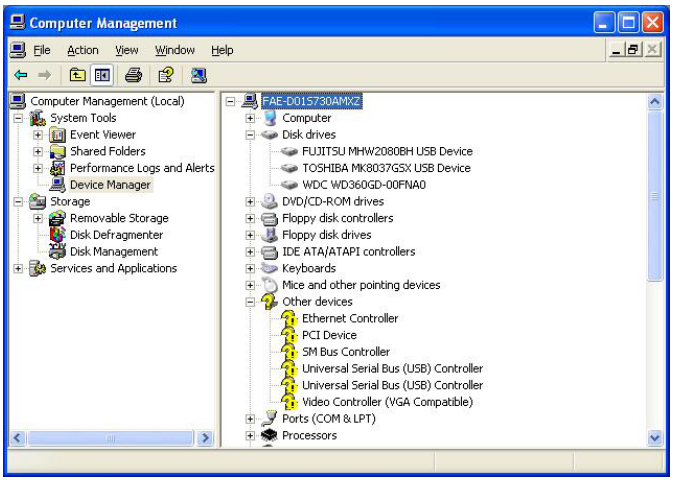
3. The Mirror USB Device representing ARS-2212 is found in the “Drive” under “Computer Management.”

- Figure I and II show the Mirror and Normal state in the “Device Manager.”

I. In the Mirror state, only one hard drive is visible.

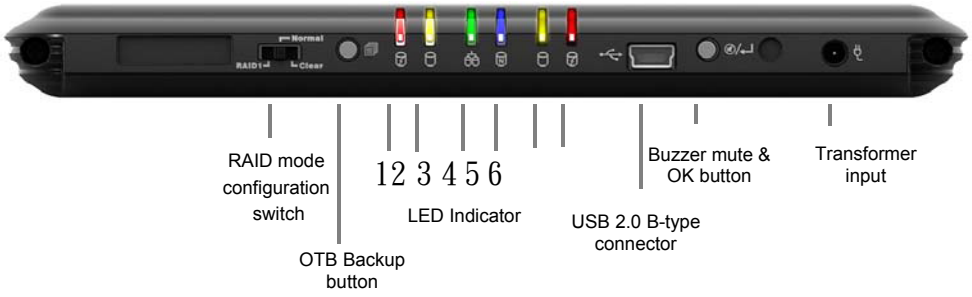


II. In the Normal state, two hard drives are visible.



Chapter 3 Setup and Operation

3.1 External Appearance



LED Indicator:

①②are the power supply/malfunction/data rebuilding and data access indicators for hard disk 2

☒ ③is the Mirror mode indicator

☒ ④is the Normal mode indicator

☒ ⑤⑥are the power supply/malfunction/data rebuilding and data access indicators for hard disk 2

NOTE：

- The hard disk near the RAID control switch is Hard Disk 2.
- The hard disk near the USB interface is Hard Disk 1.

3.2 RAID Mode Instructions

1. ARS-2212 Normal Mode Setup (If originally set to Mirror Mode by default)

- First, connect the ARS-2212 to the power supply then set the RAID Mode switch to “Clear” as shown in the picture below:

- Next press “” button to make sure it is in “Clear” mode. Meanwhile, the 4 Normal indicator flashes blue every second, and 1 and 6 indicators continuously light orange with one long beep and three short beeps.
- Finally set the array mode switch to “Normal Mode” and press the “” button to make sure it is in “Normal” mode. Meanwhile, the 4 LED continuously lights up blue, and the 1 as well as 6 indicators continuously light up green after flashing red for six times, as shown below:

- After setting the Normal mode, two USB devices are visible in the Device Manager. For more information about how to use the hard drives, refer to the hard drive management section in the troubleshooting chapter.

2. ARS-2212 Mirror Mode Setup (If originally set to Normal Mode)

- First, connect the ARS-2212 to the power supply then set the RAID Mode switch to “Clear” as shown in the picture below:

- Next press the “⏻/⏎” button to enable “Clear” mode. The and LEDs will now blink every second. and 1 and 6 indicators continuously light orange with one long beep and three short beeps.

- Finally, set the array mode switch to “RAID1” mode and press the “⏻/⏎” button to make sure it is in “RAID1” mode. Meanwhile, the 3 LED continuously lights up green, and the 1 as well as 6 indicators continuously light green after flashing red for six times. If the 1 indicator flashes orange while online, it means that the data reconstruction is running on the second hard drive, as show below:

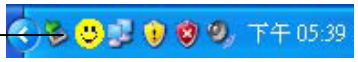
- After setting the Normal mode, one USB devices are visible in the Device Manager. For more information about how to use the hard drives, refer to the hard drive management section in the troubleshooting chapter.

Attention:

The Clear operation must be performed before changing the RAID mode each time. Make sure that your data is kept in a safe place.

ARS-2212 Backup Setup

Before using the ARS-2212 Backup Control Button, you must install the eSBR software utility from the support CD-ROM included in your product packaging. Once the utility has been successfully installed a small smiley face icon will appear in the system tray at the bottom right corner of the screen. “OTB Manager” will be added to the System’s Startup folder as well so it will automatically loaded on system startup as shown in the picture below:

eSBR Utility工具圖 

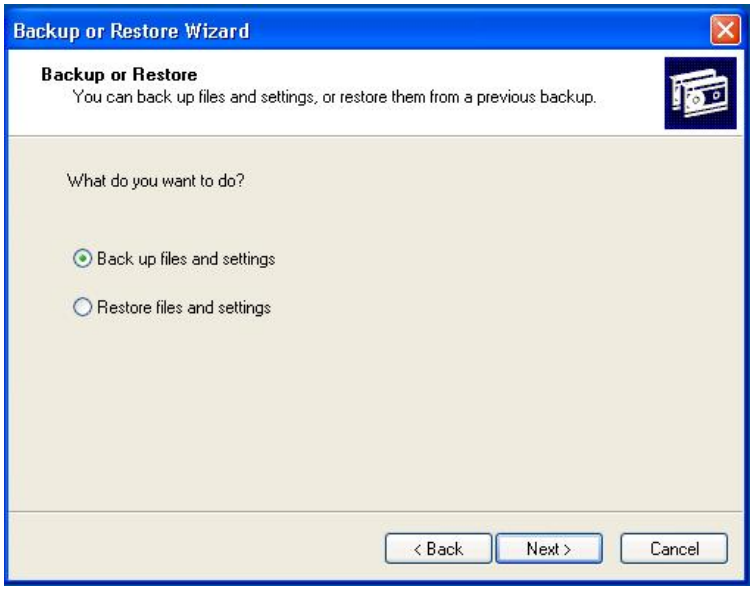
If we now connect the ARS-2212 to the power supply and link it to the computer through the USB cable, pressing the “Backup Data” button will activate the device as shown below:

Once the button is pressed it will launch XP’s system backup or recovery wizard. The backup prompt window shown below will appear on the connected computer. Use the mouse to click “Next”:

Backup or Restore Wizard
Welcome to the Backup or Restore Wizard
This wizard helps you back up or restore the files and settings on your computer.
If you prefer, you can switch to Advanced Mode to change the settings used for backup or restore. This option is recommended for advanced users only.
Always start in wizard mode
To continue, click Next.
< Back
Next >
Cancel

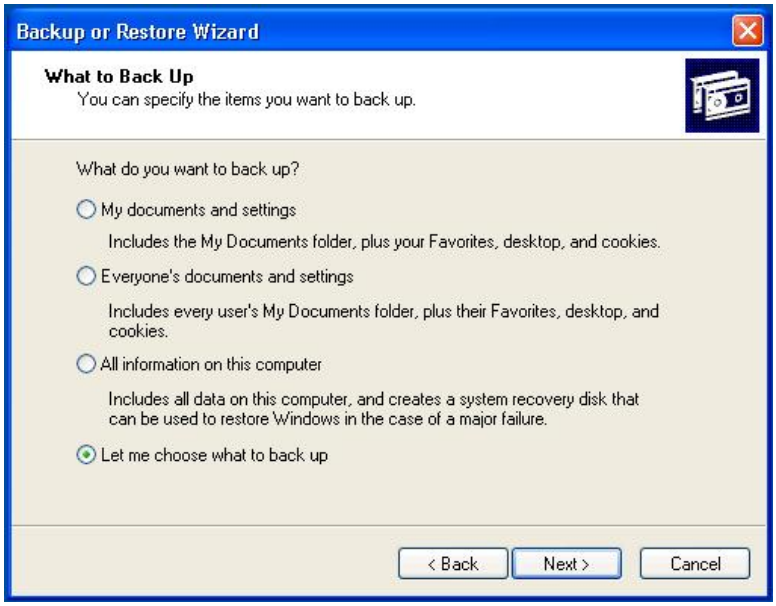
To backup data for the first time, follow the prompt and select “Backup Files and Configuration”. Use the mouse to click “Next”.

Choose “Next”:

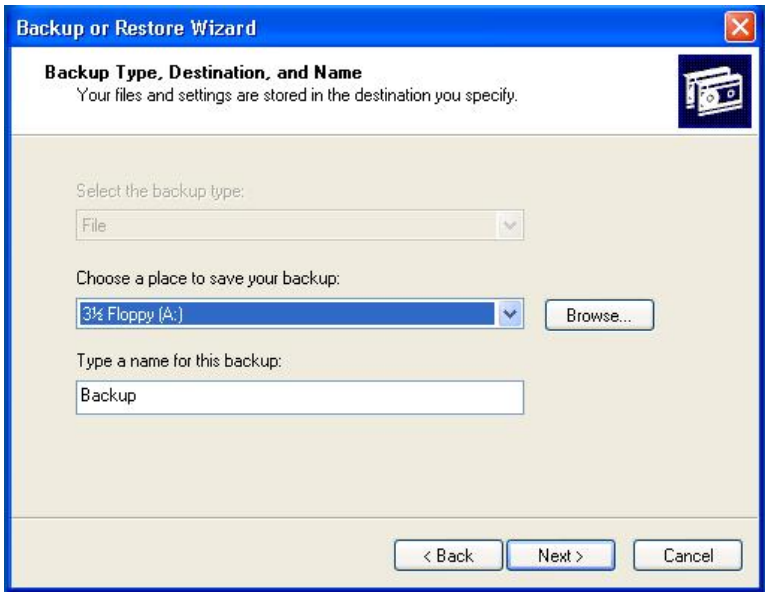

Backup or Restore Wizard
Backup or Restore
You can back up files and settings, or restore them from a previous backup.
What do you want to do?
Back up files and settings
Restore files and settings
< Back
Next >
Cancel

Choose the data you wish to backup to the ARS-2212. These can be one of the data backup options listed below. For example, we can choose “Let me choose the data to backup” then click “Next” as shown below:

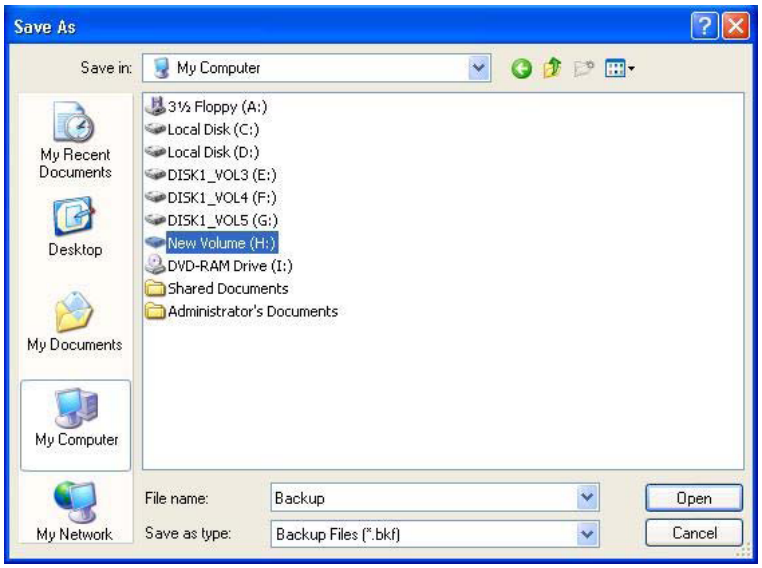
After selecting the data files and folders on the computer to backup, continue by clicking “Next”:


Backup or Restore Wizard
What to Back Up
You can specify the items you want to back up.
What do you want to back up?
My documents and settings
Includes the My Documents folder, plus your Favorites, desktop, and cookies.
Everyone's documents and settings
Includes every user's My Documents folder, plus their Favorites, desktop, and cookies.
All information on this computer
Includes all data on this computer, and creates a system recovery disk that can be used to restore Windows in the case of a major failure.
Let me choose what to back up
< Back
Next >
Cancel

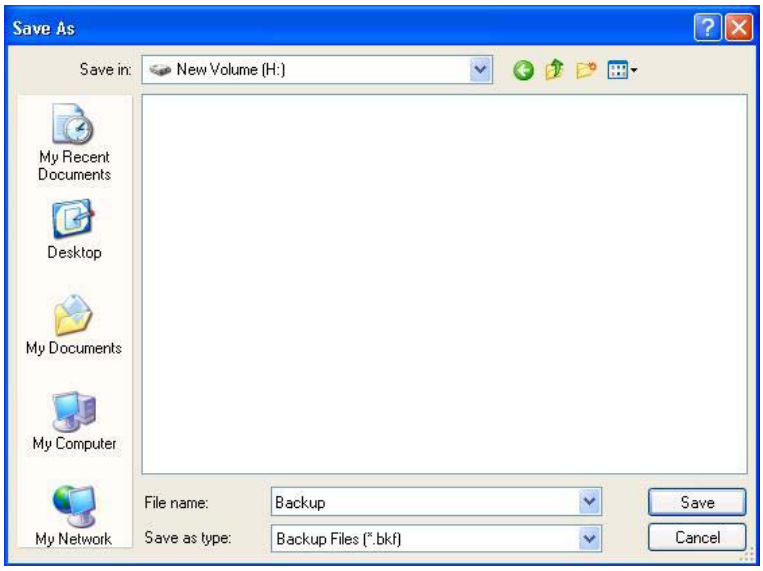
Choose the destination for the data on the ARS-2212 and give the backup file a file name. The ARS-2212 destination can be changed by clicking on “Browse”:


Backup or Restore Wizard
Backup Type, Destination, and Name
Your files and settings are stored in the destination you specify.
Select the backup type:
File
Choose a place to save your backup:
3½ Floppy (A:)
Browse...
Type a name for this backup:
Backup
< Back
Next >
Cancel

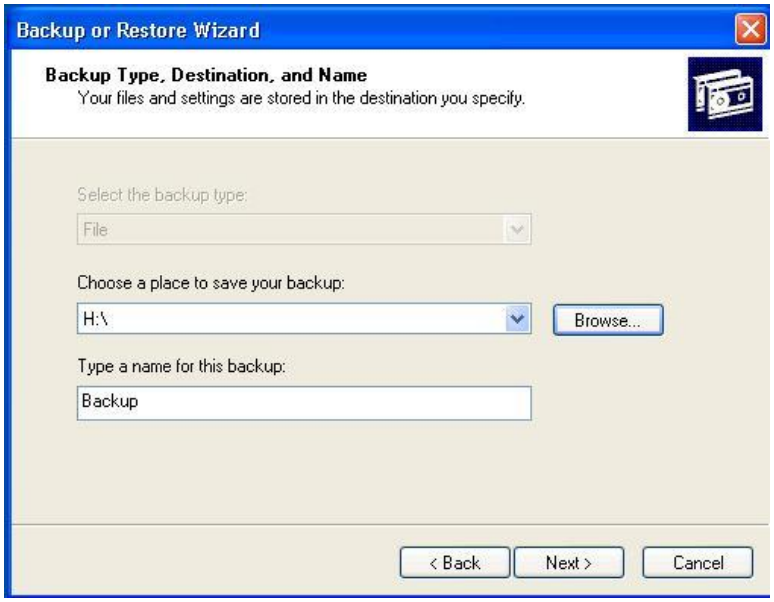
If you click on “Browse” a "Save as…” window will appear. Select the drive letter for the ARS-2212 and click on “Open” as shown below:



At the ARS-2212 hard disk, check that the name of the backup file is correct then click on “Save” as shown below:



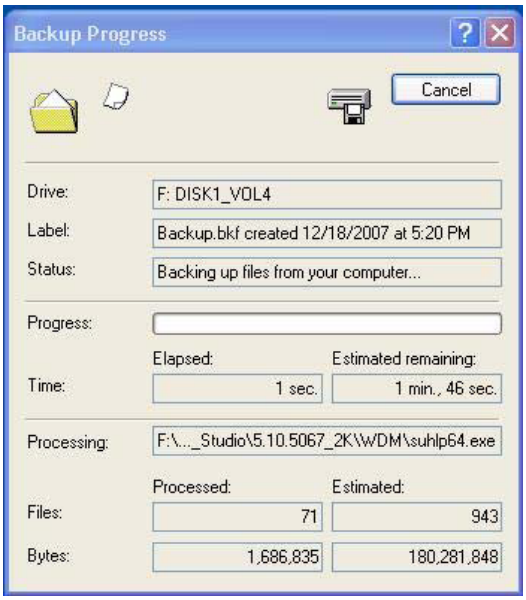
After confirming the location to save to, click on “Next” to configure the backup options as shown below:



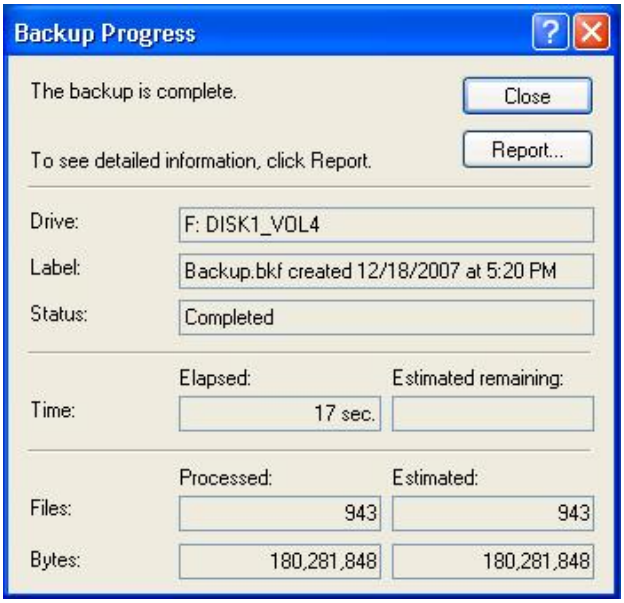
Finally, click on “Finish" to end the backup & recovery wizard and begin backing up your files:

Backup or Restore Wizard
Completing the Backup or Restore Wizard
You have created the following backup settings:
Name: H:\Backup.bkf
Description: Set created 12/18/2007 at 5:20 PM
Contents: Selected files and folders
Location: File
To close this wizard and start the backup, click Finish.
To specify additional backup options, click Advanced.
Advanced...
< Back
Finish
Cancel

During data backup the following backup progress window will appear on screen:



When done, click on “Close” to finish the backup process or click on “Report” to check the backup information as shown below:



3.3 LED Indicator

a. RAID Mode Status Display

LED Indicator	Status Description
Blue, Steady	Normal Mode (LED 4)
Blue, Blinking	Normal Mode, but RAID Mode switch in wrong position
Green, Steady	Mirror Mode (LED3)
Green, Blinking	Mirror Mode, but RAID Mode switch in wrong position
Blue/Green, Blinking	Clear Mode (LED3 &4), waiting for user to set mode

b. Hard Disk Status Display (Tri-Color LED1 and 6)

LED Indicator	Status Description
Green, Steady	Hard disk normal
Orange/Green, Blinking	Rebuilding data (destination hard disk for data)
Orange/Green, Blinking	Comparing data (destination hard disk for data)
Red, Steady	Hard disk failure or no hard disk installed
Red/Green, Blinking	Hard disk has bad sectors (2 flashes every 8 seconds)
Red, Steady	Hard disk not properly connected (accompanied by 5 long beeps)
Red, Blinking	RAID damaged (accompanied by short beeps)
Orange, Steady	Offline (in Clear mode)

Chapter 4 Troubleshooting

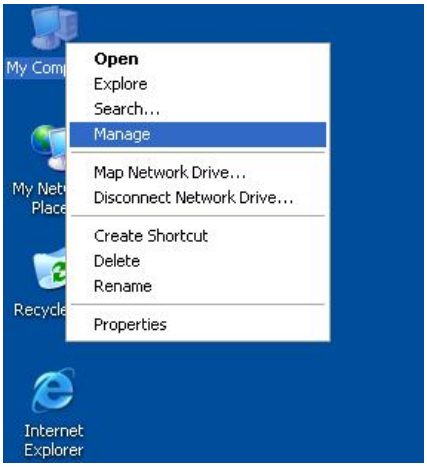
If you encounter any problems with the use of the ARS-2212 please check the following troubleshooting guide first. If this still does not solve the problem, please fill out the Technical Support Application Form and send it back to ACARD. Our technicians will respond as soon as possible.

1. System detects unknown device or incorrect hard disk

   This usually happens if there are no hard disks connected to the ARS-2212. If an incorrect hard disk is detected, the hard disk might not be properly connected to the ARS-2212 or not be a supported model. Please visit the ACARD website for the latest list of supported hard disks or download the latest ARS-2212 firmware that supports your hard drive.

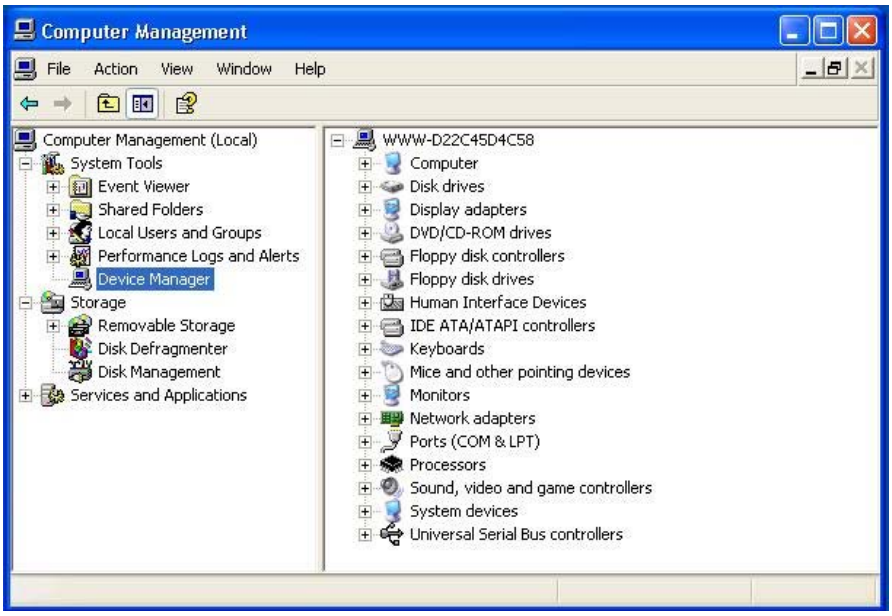
2. Error occurs while accessing the ARS-2212 or when system is on standby
   - Check that the ARS-2212 and the USB cable are properly connected.
   - Check that the USB cable is not damaged.
   - If it is a hard disk problem, try replacing one hard disk and setting up the ARS-2212 again.
3. Update the ARS-2212 firmware and change the size of the hard disk image. Please refer to Appendix 2.
4. System unable to detect the ARS-2212 hard disk
   - Check that the ARS-2212 is properly connected to each hard disk and that the power supply is corrected connected.
   - Check that the ARS-2212 is connected to the computer with the USB cable.
   - Check that the USB drivers are installed properly.
5. Check that the correct USB drivers are installed (please see steps 1~3 listed below).
6. If the drivers are properly installed, please check that the ARS-2212 drive is detected by Device Manager (see step 4).
7. If it's a new hard disk that has not yet been partitioned and formatted, please initialize the hard disk by using Disk Management (See step 5).

Step 1. Right click on “My Computer” and select “Manage”.



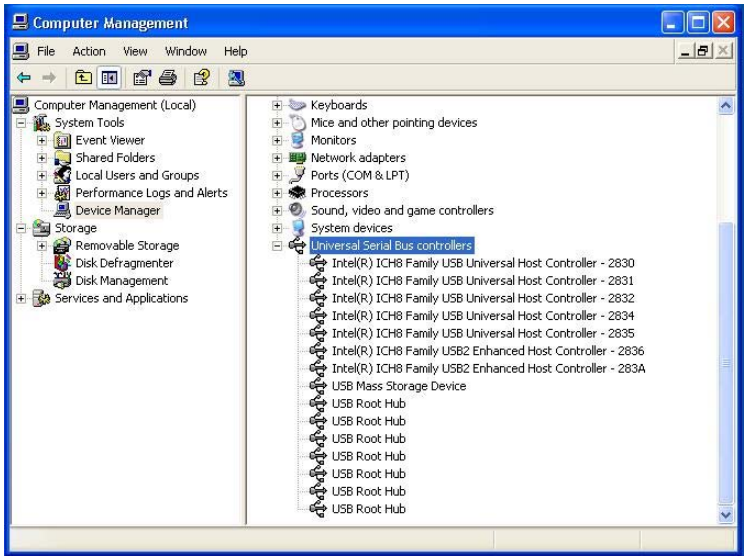
Picture 4-1

Step 2. Go into “Computer Management” and select “Device Manager”.



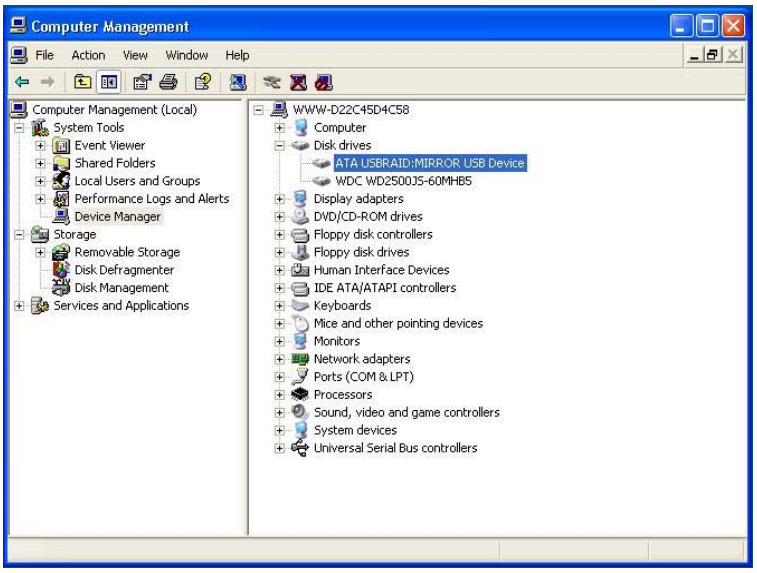
Picture 4-2

Step 3. Under “Device Manager” double click on “Universal Serial Bus Controller” to check that the USB controller driver is properly installed.



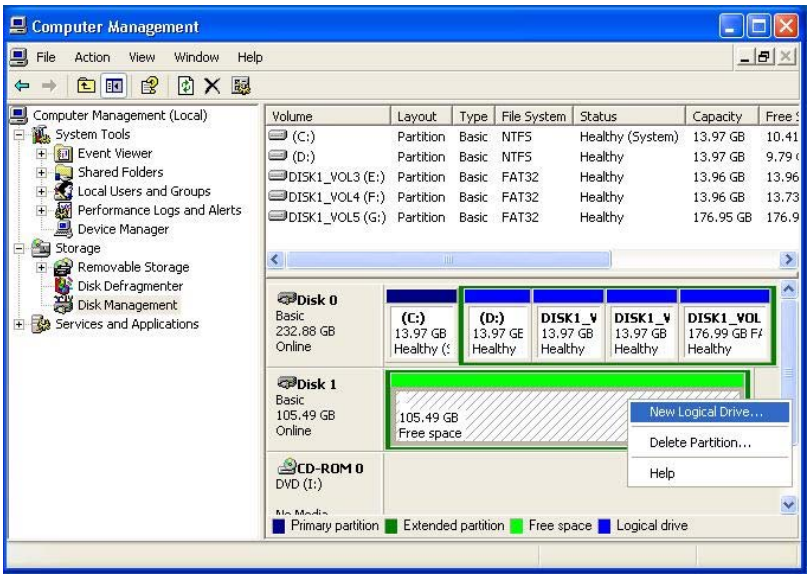
Picture 4-3

Step 4. At “Device Manager” double click on “Disk Drive” to check that the system has detected the ARS-2212 hard disk.



Picture 4-4

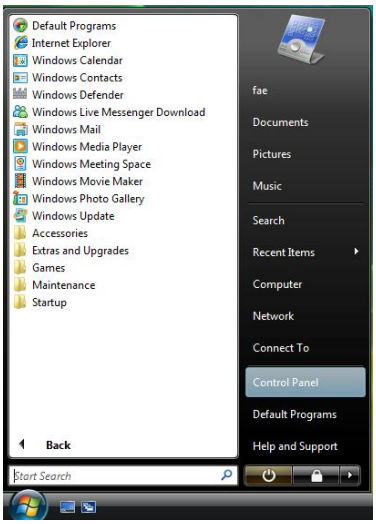
Step 5. At “Disk Drive” partition the ARS-2212 hard disk in order to access the new hard disk.



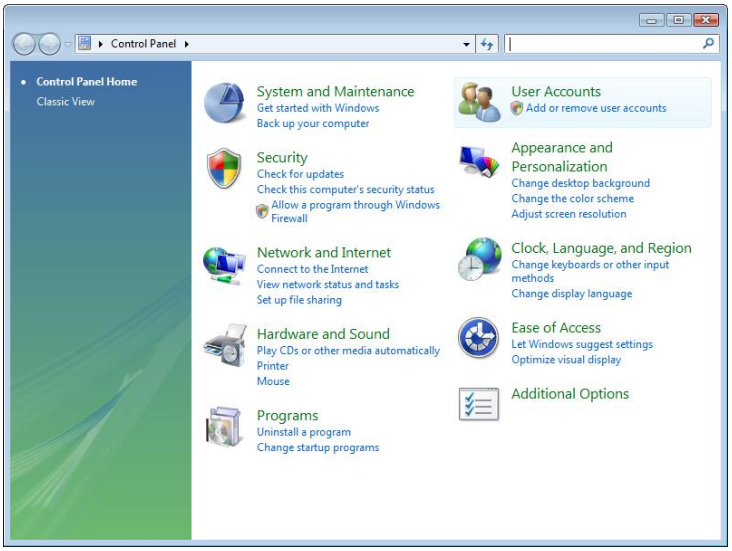
Picture 4-5

8. If you cannot properly use eSBR software or Mirror Utility Tools in the Vista operating system, this problem may be resolved by disabling the User Account Control (UAC) feature. The specific procedures are shown as below:

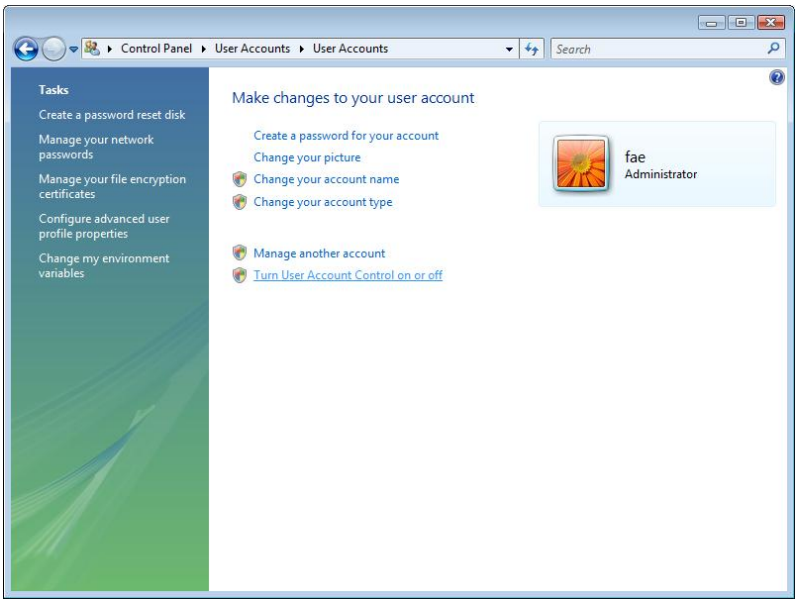
- Click Start—>Settings->Control Panel, as shown below:



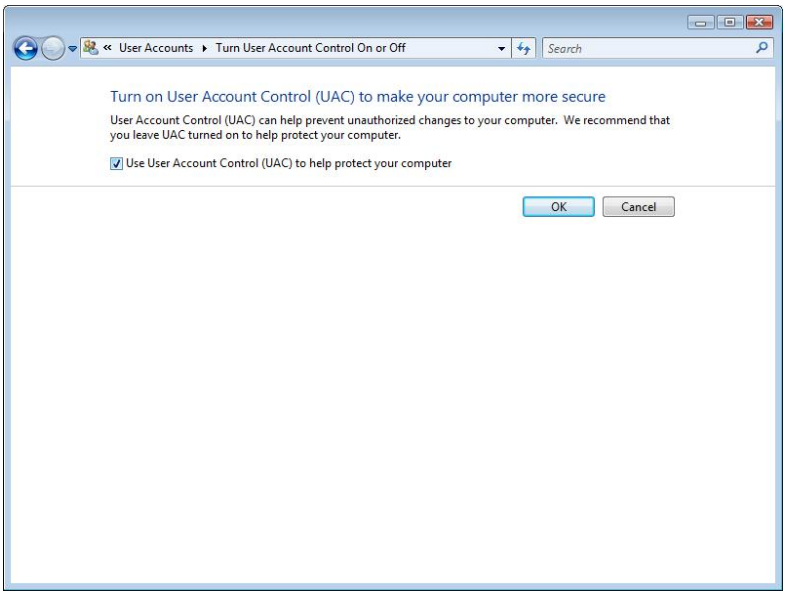
- In the pop-up Control Panel windows, click the “User Account” icon, as shown below:



- The following screen is shown:


Control Panel ▸ User Accounts ▸ User Accounts
Search
Tasks
Create a password reset disk
Manage your network passwords
Manage your file encryption certificates
Configure advanced user profile properties
Change my environment variables
Make changes to your user account
Create a password for your account
Change your picture
Change your account name
Change your account type
Manage another account
Turn User Account Control on or off
fae
Administrator

- In this window, click “Turn User Account Control on or off” and the “Turn User Account Control on or off” window as shown below appears. Then, clear the check box before “Use User Account Control (UAC) to help protect your computer” and click “OK.”
- Finally, restart the system for the settings to take effect.


« User Accounts ▸ Turn User Account Control On or Off
Search
Turn on User Account Control (UAC) to make your computer more secure
User Account Control (UAC) can help prevent unauthorized changes to your computer. We recommend that you leave UAC turned on to help protect your computer.
Use User Account Control (UAC) to help protect your computer
OK
Cancel

Chapter 5 Precautions

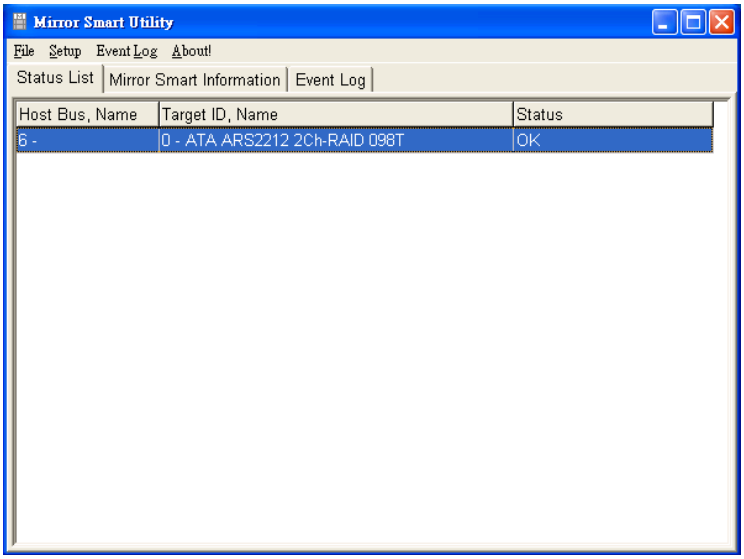
1. This product's power supply can't be connected to the computer
2. After a new installation the hard disk must be formatted before use. If data is already stored on the device, its integrity can't be guaranteed when changing the RAID mode.
3. Loss of data due to computer viruses, power outages or human error is unavoidable.
4. This product does not support disk hot-swapping. If a hard disk malfunctions and needs to be replaced, please turn off the device before replacing the hard disk.
5. In actual use the capacity of hard disk 1 (source) must be smaller or equal to the capacity of hard disk 2 (target)
6. The eSBR utility software supports the built-in backup software in Windows 2000/XP/Vista. Please check regularly with the ACARD Technology website at http://www.acard.com
7. Please read the manual carefully before making advanced configuration changes to the software. Expert assistance is recommended.
8. The Ha! DVD Burner software included in the Support CD-ROM is a trial bundled with DVD burners. To buy the full version please visit the ACARD Technology website at http://www.acard.com
9. Names and product names are the trademarks or registered trademarks of their respective companies.
10. The external appearance of specifications may be subject to change without notice

Appendix 1 ARS-2212 Application

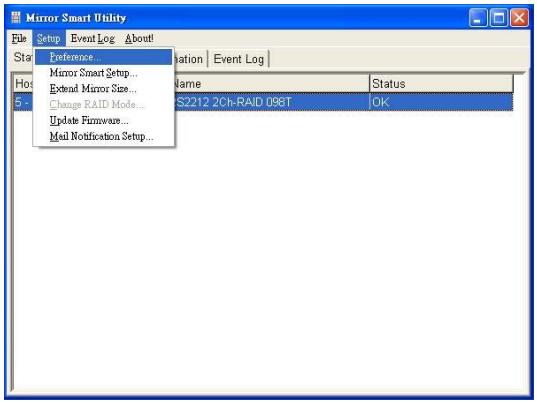
Software (Advanced User Configuration)

The Mirror Smart Utility application is designed for managing the ARS-2212. This software allows you to easily configure and monitor the status of the ARS-2212. Once the Mirror Smart Utility is installed, you can launch the application from the desktop shortcut or the program menu. The “Mirror Smart Utility” will be added to the system’s Startup folder as well so it will automatically launch on system startup. Double click on the system tray icon " " in the bottom right corner as shown below:

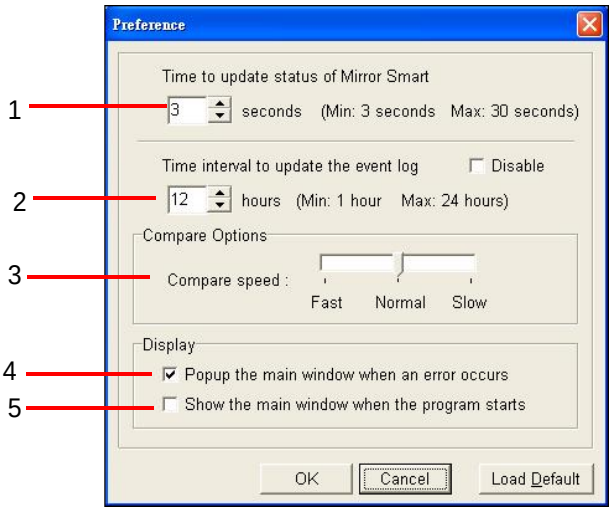
Click on “ ” tool and you will see the following:



Once installation is complete and you wish to change some parameter settings within the application, click on “Setup” as shown below and select “Preference”.

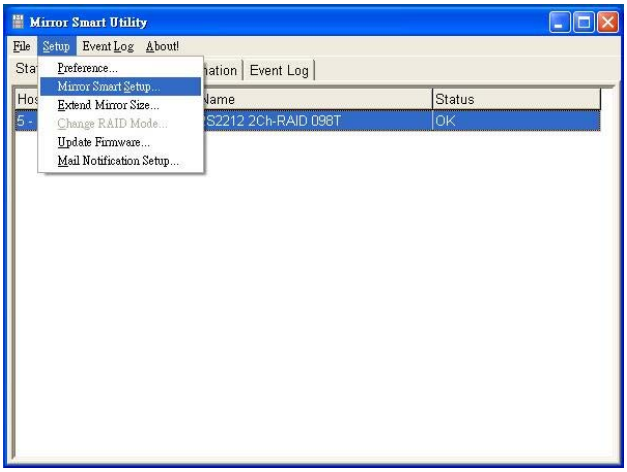


A description of the main settings in “Preference” is provided below:

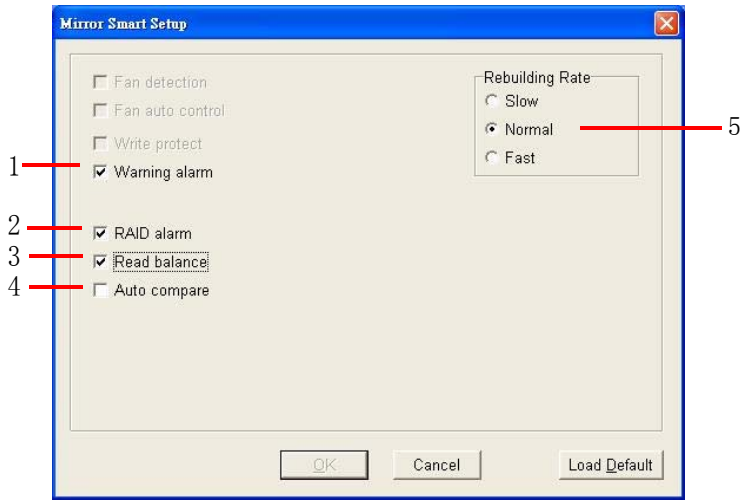


1. Set time interval for system updates.
2. Set time interval for event log updates.
3. Set data comparison frequency.
4. Show main program window if an error occurs.
5. Show main program window when program is running.

To configure Mirror Smart functions, click on “Setup” as shown below then select “Mirror Smart Setup”.

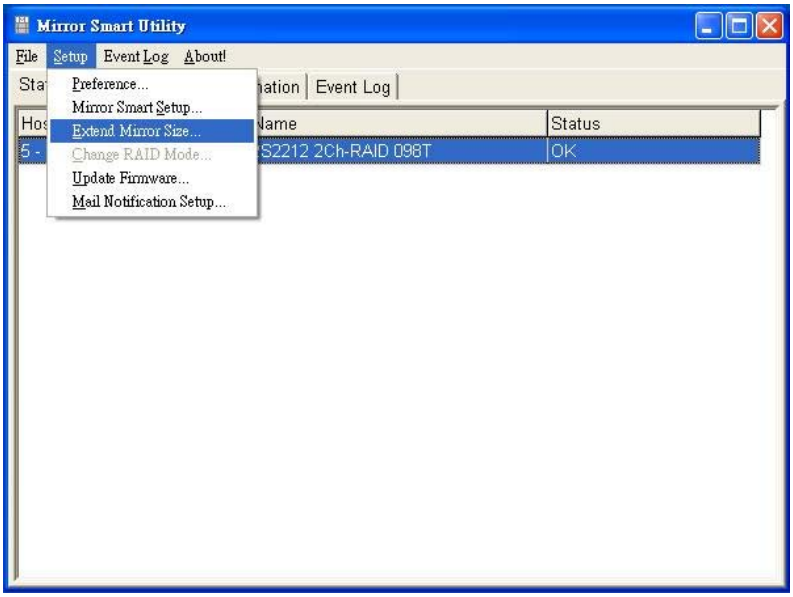


A description of the main settings in “Mirror Smart Setup” is provided below.

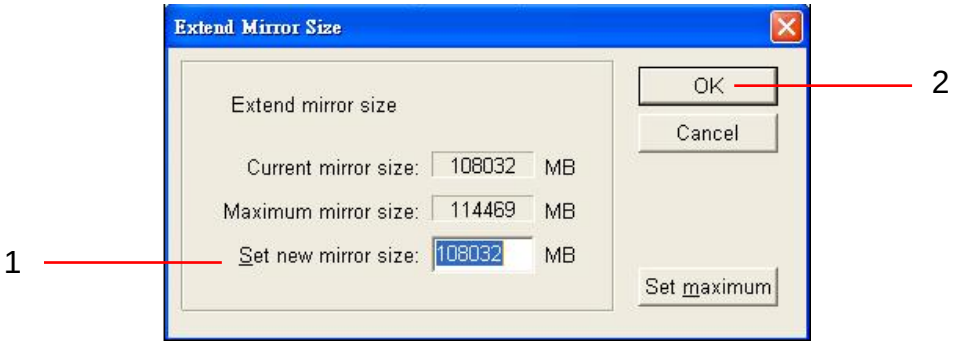


1. If there is a problem with the system, warn the user by sounding the alarm.
2. If there is a problem with RAID, warn the user by sounding the alarm.
3. Rotate between hard disk being accessed every minute to extend hard disk life.
4. After rebuilding data on hard disk automatically compare the data.
5. Hard disk data rebuilding speed.

To change the Mirror Smart capacity, click on “Setup” as shown below then select “Extend Mirror Size”.



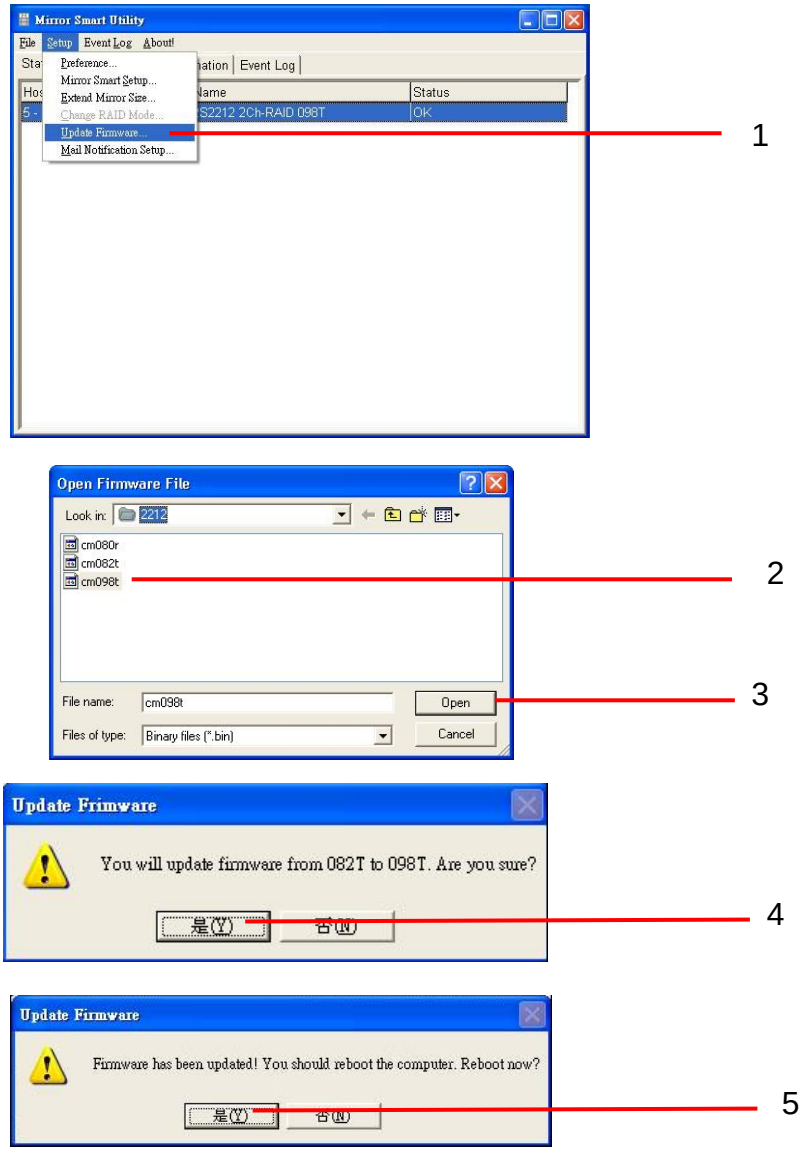
1. The new defined capacity must be equal or larger than the current capacity.
2. Set capacity to maximum.



**If current capacity is already at maximum then it can’t be changed.

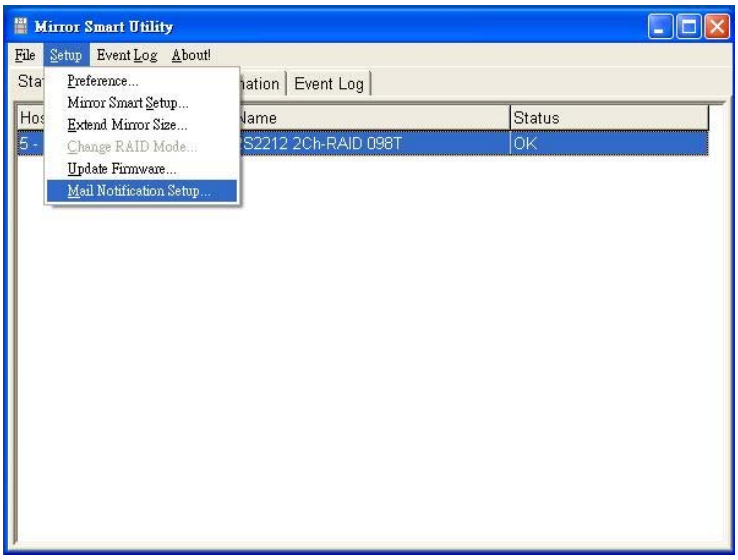
To update the Mirror Smart firmware, click on “Setup” as shown below then select “Update Firmware”.

Attention: The latest firmware can be downloaded from the official ACARD website (www.acard.com)

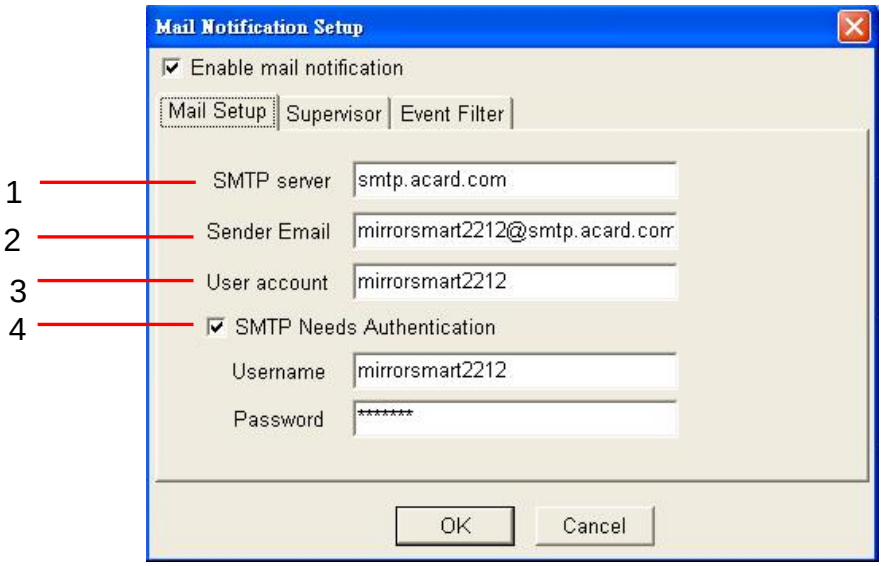


1. Current firmware version.
2. Select firmware file.
3. Click to “Open” the new firmware to update with.
4. Click “Yes" to confirm firmware update.
5. Follow the system prompt and click on “yes” to reboot the system.

If you wish to receive an e-mail warning when a problem occurs with the system or hard disk, click on “Setup” as shown below and select “Mail Notification Setup”. Under “Mail Setup” check that the box for Enable mail notification is ticked then fill in the data for the four fields below:

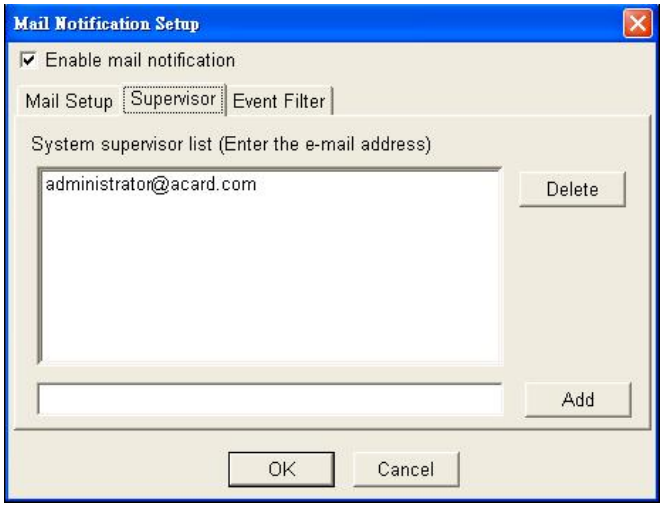


1.SMTP server / 2.User account / 3.Sender Email / 4.SMTP Needs Authentication

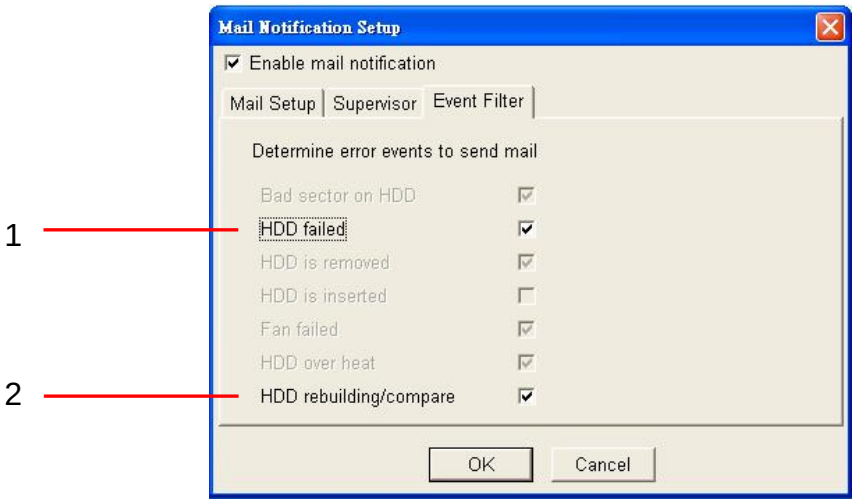


Attention: If your SMTP Server needs authentication, please tick item 4 then enter user

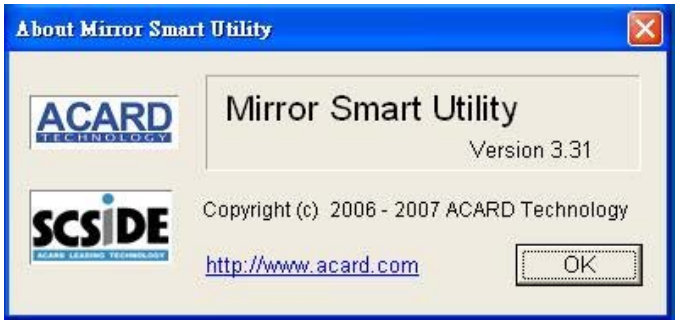
Then in the text box below “Supervisor” input the recipient’s e-mail address then select “Add” to add the address to the list of recipients



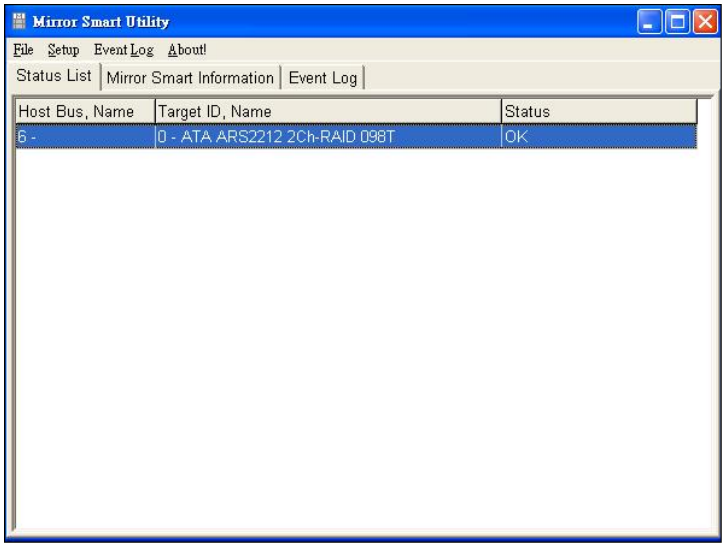
Finally select “Event Filter” then choose which events to notify the system administration via e-mail for. There are two types of events: 1. HDD failed and 2. HDD rebuilding/compare



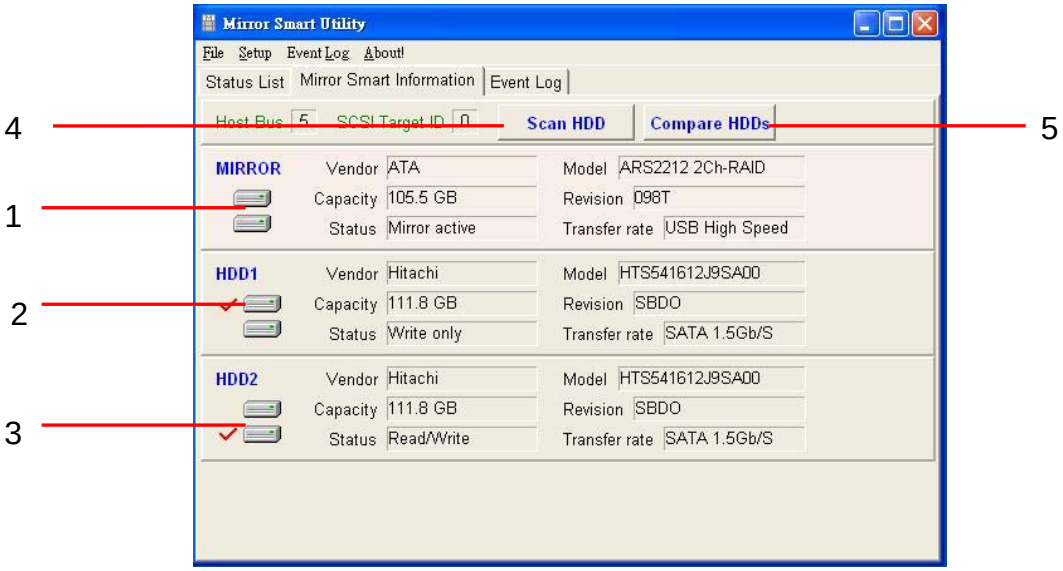
To find out the current version of the Mirror Smart application, select “About”.



Click on “Status List” to view the Mirror Smart status.



Click on “Mirror Smart Information” to see all hard disk information and Mirror status.



1. Mirror Smart system’s hard disk capacity, status, firmware version and transfer rate.
2. Hard Disk 1’s capacity, status, firmware version and SATA bus speed.
3. Hard Disk 2’s capacity, status, firmware version and SATA bus speed.
4. Scan hard disk.
5. Compare data on hard disks.

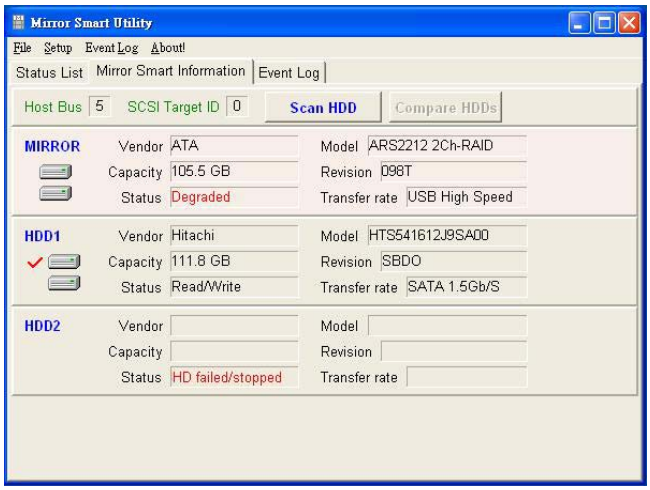
Click on “Compare HDDs” to check that the data on both hard disks are identical. The percentage bar at the bottom shows the progress of the comparison or rebuilding.

Mirror Smart Utility
File Setup Event Log About!
Status List Mirror Smart Information Event Log
Host Bus 5 SCSI Target ID 0 Scan HDD Stop compare
MIRROR Vendor ATA Model ARS2212 2Ch-RAID
Capacity 105.5 GB Revision 098T
Status Comparing Transfer rate USB High Speed
HDD1 Vendor Hitachi Model HTS541612J9SA00
Capacity 111.8 GB Revision SBDO
Status Primary Transfer rate SATA 1.5Gb/S
HDD2 Vendor Hitachi Model HTS541612J9SA00
Capacity 111.8 GB Revision SBDO
Status Secondary Transfer rate SATA 1.5Gb/S
Total capacity 105.5 GB 221249536 blocks Compare rate 287.6MB/min
Compare progress 134.8 MB 275968 blocks Remaining time 6h:15m:07s
0%

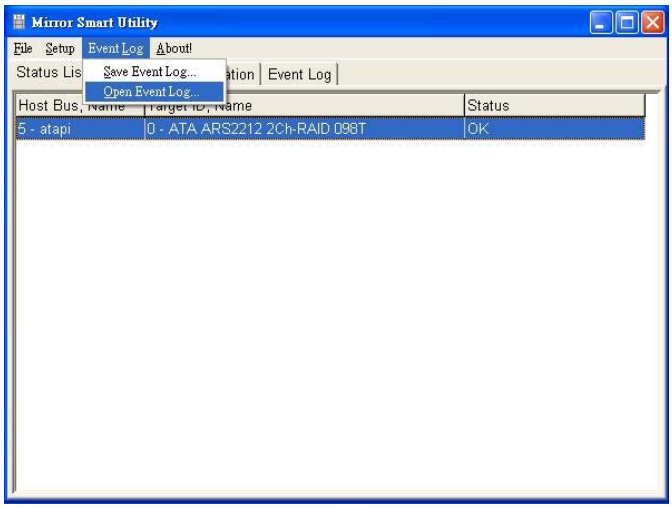
If no hard disks are installed, the status is as shown below.

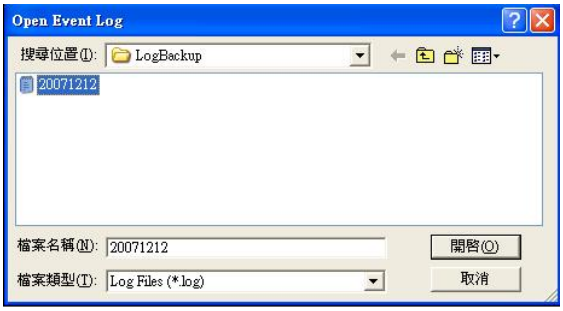
Mirror Smart Utility
File Setup Event Log About!
Status List Mirror Smart Information Event Log
Host Bus 5 SCSI Target ID 0 Scan HDD Compare HDDs
MIRROR Vendor ATA Model ARS2212 2Ch-RAID
Capacity 105.5 GB Revision 098T
Status Degraded Transfer rate USB High Speed
HDD1 Vendor Hitachi Model HTS541612J9SA00
Capacity 111.8 GB Revision SBDO
Status Read/Write Transfer rate SATA 1.5Gb/S
HDD2 Vendor Model
Capacity Revision
Status No disk Transfer rate

If no hard disk is detected by the system or there is a hard disk failure, the status is as shown below.

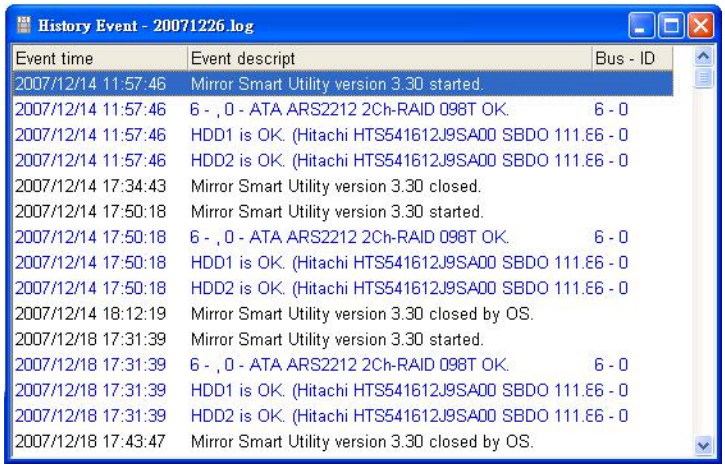

Mirror Smart Utility
File Setup Event Log About!
Status List Mirror Smart Information Event Log
Host Bus 5 SCSI Target ID 0 Scan HDD Compare HDDs
MIRROR Vendor ATA Model ARS2212 2Ch-RAID
Capacity 105.5 GB Revision 098T
Status Degraded Transfer rate USB High Speed
HDD1 Vendor Hitachi Model HTS541612J9SA00
Capacity 111.8 GB Revision SBDO
Status Read/Write Transfer rate SATA 1.5Gb/S
HDD2 Vendor Model
Capacity Revision
Status HD failed/stopped Transfer rate

To view previously saved logs, under “Event Log” select Open “Event Log” to select the event log to view.

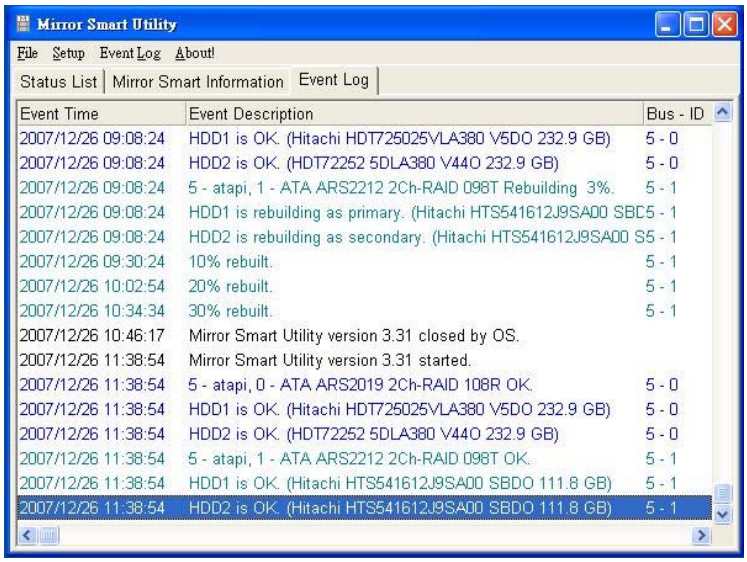




Click on “Open File” as shown below to view event log.


History Event - 20071226.log
Event time | Event descript | Bus - ID
2007/12/14 11:57:46 Mirror Smart Utility version 3.30 started.
2007/12/14 11:57:46 6 - , 0 - ATA ARS2212 2Ch-RAID 098T OK. 6 - 0
2007/12/14 11:57:46 HDD1 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 6 - 0
2007/12/14 11:57:46 HDD2 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 6 - 0
2007/12/14 17:34:43 Mirror Smart Utility version 3.30 closed.
2007/12/14 17:50:18 Mirror Smart Utility version 3.30 started.
2007/12/14 17:50:18 6 - , 0 - ATA ARS2212 2Ch-RAID 098T OK. 6 - 0
2007/12/14 17:50:18 HDD1 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 6 - 0
2007/12/14 17:50:18 HDD2 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 6 - 0
2007/12/14 18:12:19 Mirror Smart Utility version 3.30 closed by OS.
2007/12/18 17:31:39 Mirror Smart Utility version 3.30 started.
2007/12/18 17:31:39 6 - , 0 - ATA ARS2212 2Ch-RAID 098T OK. 6 - 0
2007/12/18 17:31:39 HDD1 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 6 - 0
2007/12/18 17:31:39 HDD2 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 6 - 0
2007/12/18 17:43:47 Mirror Smart Utility version 3.30 closed by OS.

The “Event Log” records the time and status of everything that happens and is useful for troubleshooting.


Mirror Smart Utility
File Setup Event Log About!
Status List | Mirror Smart Information | Event Log
Event Time | Event Description | Bus - ID
2007/12/26 09:08:24 HDD1 is OK. (Hitachi HDT725025VLA380 V5DO 232.9 GB) 5 - 0
2007/12/26 09:08:24 HDD2 is OK. (HDT72252 5DLA380 V44O 232.9 GB) 5 - 0
2007/12/26 09:08:24 5 - atapi, 1 - ATA ARS2212 2Ch-RAID 098T Rebuilding 3%. 5 - 1
2007/12/26 09:08:24 HDD1 is rebuilding as primary. (Hitachi HTS541612J9SA00 SBD 5 - 1
2007/12/26 09:08:24 HDD2 is rebuilding as secondary. (Hitachi HTS541612J9SA00 S 5 - 1
2007/12/26 09:30:24 10% rebuilt. 5 - 1
2007/12/26 10:02:54 20% rebuilt. 5 - 1
2007/12/26 10:34:34 30% rebuilt. 5 - 1
2007/12/26 10:46:17 Mirror Smart Utility version 3.31 closed by OS.
2007/12/26 11:38:54 Mirror Smart Utility version 3.31 started.
2007/12/26 11:38:54 5 - atapi, 0 - ATA ARS2019 2Ch-RAID 108R OK. 5 - 0
2007/12/26 11:38:54 HDD1 is OK. (Hitachi HDT725025VLA380 V5DO 232.9 GB) 5 - 0
2007/12/26 11:38:54 HDD2 is OK. (HDT72252 5DLA380 V44O 232.9 GB) 5 - 0
2007/12/26 11:38:54 5 - atapi, 1 - ATA ARS2212 2Ch-RAID 098T OK. 5 - 1
2007/12/26 11:38:54 HDD1 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 GB) 5 - 1
2007/12/26 11:38:54 HDD2 is OK. (Hitachi HTS541612J9SA00 SBDO 111.8 GB) 5 - 1

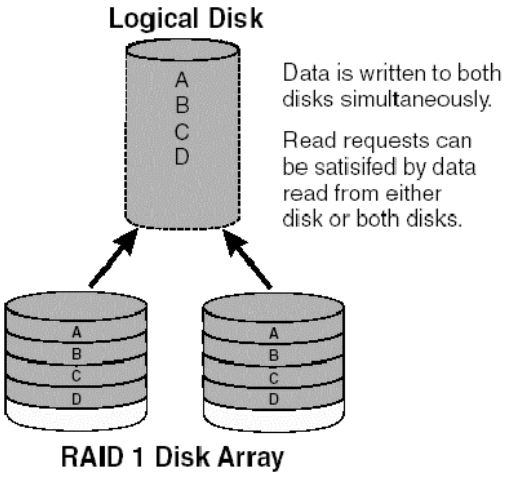
Appendix 2

About RAID

RAID (Redundant Array of Inexpensive Disks" is a system made up of multiple hard disks. In other words, it's a hard disk made up of two or more hard disks running in combination. The advantages of RAID are better access speeds, data protection and larger capacity on a single drive –e.g. disk C or disk D. Different RAID levels have different disk combinations and functions.

RAID 1 must be made up of an even number of hard disks. Each hard disk is matched to another by the RAID controller and data is written simultaneously to both hard disks. This means that the data on both hard disks are identical. When the data on one hard disk is damaged, the hard disk can be replaced with a new one. The RAID controller will then restore the data using the backup on the other hard disk. For single drives, RAID 1 offers the best fault tolerance.

We recommend using hard disks of the same capacity to run RAID 1 as the Mirroring capacity is always the capacity of the smallest hard drive. For example, if a 100GB hard disk and a 120GB hard disk are run together in RAID 1, the available capacity is 100GB.

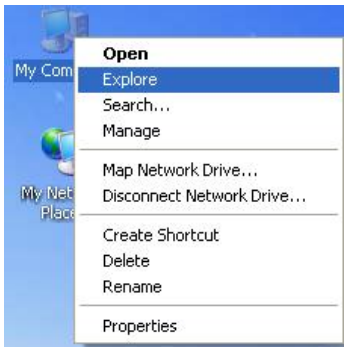


Appendix 3

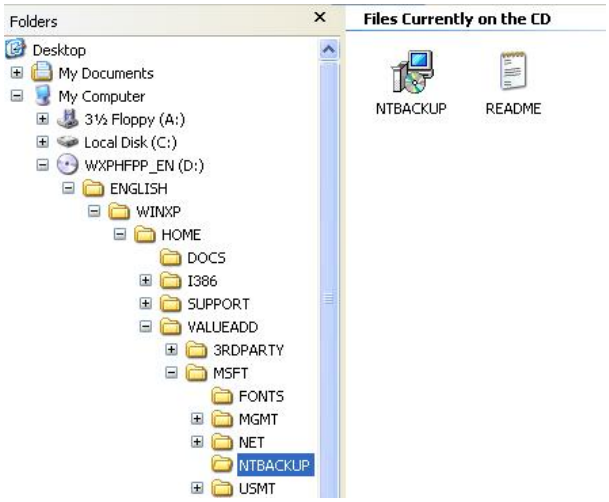
Concerns the installation of the Windows system recovery and backup assembly

Windows system recovery and backup assembly are not included in the XP Home Edition so you must manually install them from the genuine software you purchased. If you use a laptop computer, please contact your dealer. First, insert the XP disc into the optical drive, click “My Computer,” and select “Windows Explorer.”

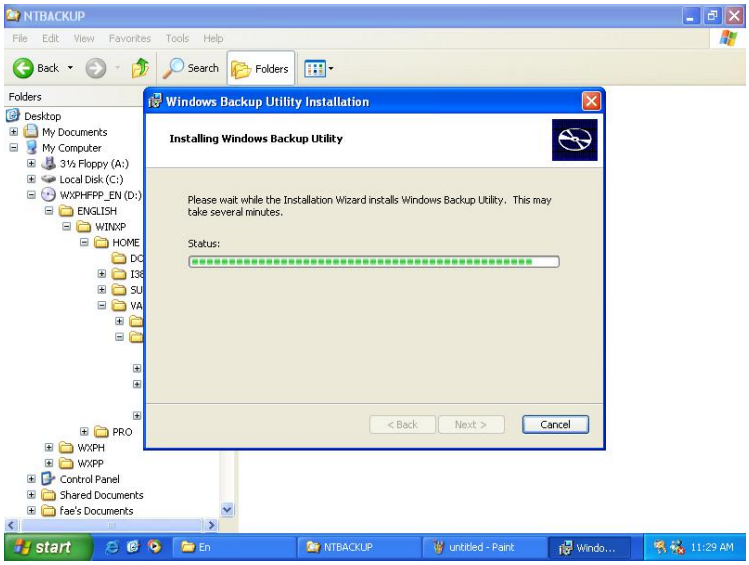
- As shown below: VALUEADD->MSFT->NTBACKUP



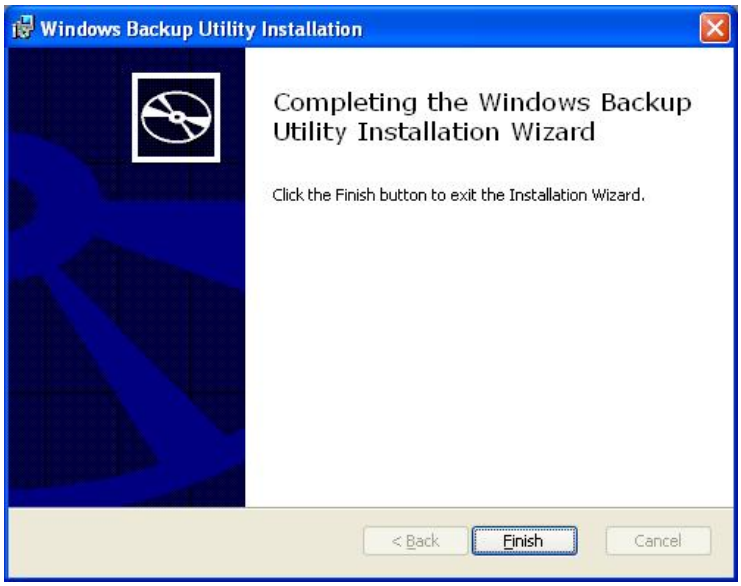
- In “Windows Explorer,” click My Computer -> XP Disc -> VALUEADD -> MSFT -> NTBACKUP to the left of the folder and you can see the system restore and backup installation procedures “NTBACKUP.MSI” and Help documents to the right of the folder.



Install “NTBACKUP.MSI” directly, as shown below:


NTBACKUP
Windows Backup Utility Installation
Installing Windows Backup Utility
Please wait while the Installation Wizard installs Windows Backup Utility. This may take several minutes.
Status:
< Back
Next >
Cancel

After installation is complete, select Finish, as shown below:


Windows Backup Utility Installation
Completing the Windows Backup Utility Installation Wizard
Click the Finish button to exit the Installation Wizard.
< Back
Finish
Cancel

Technical Support Application Form

Mail to: support@acard.com
Website: http://www.acard.com

∗ Model ARS-	∗**Firmware Version**	
System Mode		
∗Mainboard		
BIOS Version		
Chipset		
Memory		
Graphics Card		
∗Operating System		
Hard Disks	Disk 1	Disk 2
∗Manufacturer		
∗Model		
∗Capacity		
∗Problem Description:		